CLAIMS:

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1.   A classifier for segregating particles by size or density, said classifier comprising:

a fluidization chamber adapted to contain a fluidized bed;

fluidization means adapted to provide a flow of fluidization fluid into the

fluidization chamber; and

one or more inclined plates mounted within the fluidization chamber positioned

such that in use, particles elutriated by the fluidization fluid within the chamber are

caused to be segregated above or below the plates according to their size or density.

2.   A classifier as claimed in claim 1 wherein said one or more inclined plates

10   comprises at least one array of inclined plates.

3.   ~~A classifier as claimed in claim 2 wherein said array of inclined plates comprises~~

~~an array of parallel equally spaced plates.~~

4.   A classifier as claimed in either claim 2 or claim 3 wherein said array of plates

extends across said fluidization chamber.

5.   ~~A classifier according to any one of claims 2 to 4 wherein two or more arrays of~~

inclined plates are provided, each array being vertically spaced from the or each other

~~array, and dividing the fluidization chamber into zones.~~

6.   A classifier as claimed in claim 5 wherein the length of each plate in an array, the

angle of inclination of the plates, and the spacing between plates in that array are

20   selected to enable particles of a predetermined size or density to pass through the array

when elutriated at a predetermined rate by the fluidization fluid, while inhibiting

particles of greater size or density from passing through the array.

7.   A classifier as claimed in any one of claims 2 to 6 wherein a feed fluid incorporating particles to be classified is fed into the fluidization chamber between two said arrays of inclined plates.

8.   A classifier as claimed in any one of claims 1 to 6 wherein the particles are fed into the fluidization chamber with the fluidization fluid.

9.   A method of classifying particles by size or density, said method comprising the steps of:

providing a fluidized bed within a fluidization chamber in which is positioned one or more inclined plates; and

10   feeding the particles into the fluidized bed and withdrawing particles from the chamber at one or more predetermined locations.

10.   A method as claimed in claim 9 wherein the chamber is provided with two or more arrays of said inclined plates, each array being vertically spaced from the or each other array thereby dividing the fluidization chamber into zones, and wherein the withdrawal

15   of particles from the chamber comprises withdrawal from a selected one or more of said zones.

11.   A method as claimed in either claim 9 or claim 10 wherein said fluidized bed is provided with fluidization fluid at a predetermined rate so as to achieve desired separation of sizes or densities above and below said inclined plates, in combination with

20   selected sizes, inclination and spacings of said inclined plates.

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